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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,522	08/08/2000	Lawrence W. Kimberly	0113022-002	4661

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EXAMINER
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WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/634,522

Applicant(s)

KIMBERLY, LAWRENCE W.

Examiner

Alexis Wachtel

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22, 38-45 and 65-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22, 38-45 and 65-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date 3-31-04.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Detailed Action***

***Response to Amendment***

1. Applicant's amendment and accompanying Remarks filed 4-1-2004 have been entered and carefully considered.

The amendment is sufficient to overcome the obviousness rejections of claims 1-22,29-64 and the 112 2nd paragraph rejections of claims 39,41,43,45,47,49,51,53. Claims 23-37,46-64 are cancelled without prejudice. Claims 65-68 were added for consideration. However, an updated search yielded new prior art that provides a new basis of rejection as shown below. Applicant's arguments are rendered moot in view of the new grounds of rejection.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-22,38-45,65-68 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,180,037 to Andersen et al.

Andersen et al teaches a composite material comprising: a matrix material; and a plurality of microsphere particles in the matrix material, the microsphere particles ranging from 69% to about 85% by volume of the composite material (Col 7, lines 9-13) and consisting essentially of diameters

ranging from about 1 micron to about 350 microns (Col 25, lines 67, Col 26 lines 1-2); wherein the composite material is substantially free of voids in the matrix material between the microsphere particles.

Per claim 2: wherein the plurality of particles range from about 69% by volume to about 81% by volume of the composite material (Col 7, lines 9-13).

Per claim 3: wherein the plurality of particles comprises about 75% by volume of the composite material (Col 7, lines 9-13).

Per claim 4: wherein the plurality of particles comprises at least a plurality of first particles and a plurality of second particles having different sizes compared to each other (Col 7, lines 9-13; Col 28, lines 49-59).

Per claim 5: wherein the plurality of microspheres are hollow microspheres (Col 26, line 47).

Per claim 6: wherein the hollow microspheres comprises at least two different sized microspheres (Col 28, lines 49-59).

Per claim 7: wherein substantially any given distance between adjacent microsphere particles is less than a diameter of the smallest microsphere particle (Col 28, lines 49-59). Examiner notes that the disclosure of Andersent et al is broadly enabling for the distance between adjacent microspheres since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 8: wherein substantially all of the plurality of particles are in contact with adjacent particles (Col 28, lines 49-59). Examiner notes that the disclosure of Andersent et al is broadly enabling for the distance between

adjacent microspheres since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 9: wherein the particles are selected from the group consisting of ceramic particles, glass particles (Col 26, lines 47), plastic particles and combinations thereof.

Per claim 10: wherein the matrix material is selected from the group consisting of epoxies, polyesters, vinyl esters, phenolics, thermoplastics, thermosets, polyurethanes, glues, cements, matrix material binders (Col 8, line 9) and combinations thereof.

Per claim 11: further comprising at least one layer of material in contact with the matrix material having the particles.

Per claim 12: wherein the at least one layer is selected from the group consisting of carbon fibers, glass fibers, uni-directional fiber, cross woven fibers, matte fibers, fiber braid, uni-directional stitch woven carbon fiber braid, plastics, leathers, foils, metals, laminates, composites, thermoplastics, thermoset materials, resins, ceramics, vinyls, rigid materials, flexible materials, flanking materials, and combinations thereof. Andersen et al teaches that such sheets can be laminated or layered (Col 7, lines 19-21). Examiner notes that if a plurality of such sheets are layered, a composite material inherently results that can have a central and flanking layers.

Per claim 13: wherein the composite material has a specific gravity of from about 0.38 to about 2.2 (Col 28, lines 49-59). Examiner notes that the disclosure

of Andersent et al is broadly enabling for the specific gravity since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 14: The composite material has a specific gravity of less than 1.0 (Col 28, lines 49-59). Examiner notes that the disclosure of Andersent et al is broadly enabling for the specific gravity since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 15: A composite material comprising: a matrix material from about 15% to about 31% by volume (Col 8, lines 9); and microspheres from 69% to about 85% by volume (Col 7, lines 9-13), substantially all of the microspheres having diameters ranging from about 1 micron to about 350 microns (Col 25, line 67, Col 26, lines 1-2, Col 28, lines 49-59); wherein the composite material is substantially free of voids in the matrix material between the microsphere particles (Col 28, lines 49-59). Examiner notes that the disclosure of Andersen et al is broadly enabling for lack of void space between microsphere particles since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 16: wherein the matrix material is from about 19% by volume (Col 8, line 9), and the microspheres are from about 69% by volume to about 81% by volume (Col 7, lines 9-13).

Per claim 17: wherein the matrix material is about 25% by volume (Col 8, line 9) and the microspheres are about 75% by volume (Col 7, lines 9-13).

Per claim 18: A composite material comprising a matrix binder material and microspheres, the microspheres having a volume of about 69% to about 85% of a volume (Col 7, lines 9-13) of the matrix binder material combined with the microspheres and consisting essentially of diameters ranging from about 1 micron to about 350 microns; wherein the matrix binder is substantially free of voids between the microspheres (Col 28, lines 49-59). Examiner notes that the disclosure of Andersen et al is broadly enabling for lack of void space between microsphere particles as well as the claimed particle size range since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 19: A composite material comprising a core having a matrix material from about 15% to about 31% by volume (Col 8, line 9) of the core, and microspheres from about 69% to about 85% by volume of the core, substantially all of the microspheres having diameters ranging from about 1 micron to about 350 microns (Col 28, lines 49-59); and a flanking layer bonded to the core; wherein the matrix material is substantially free of voids between the microspheres. Examiner notes that the disclosure of Andersen et al is broadly enabling for lack of void space between microsphere particles as well as the claimed particle size range since Andersen et al aptly demonstrates that such parameters are adjustable so as to qualify the resulting sheet for a specific application.

Per claim 20: wherein the core has flanking layers bonded to opposite sides of the core. Andersen et al teaches that such sheets can be laminated or

layered (Col 7, lines 19-21). Examiner notes that if a plurality of such sheets are layered, a composite material inherently results that can have a central and flanking layers.

Per claim 21: wherein the flanking layer substantially surrounds the core Andersen et al teaches that such sheets can be laminated or layered (Col 7, lines 19-21). Examiner notes that if a plurality of such sheets are layered, a composite material inherently results that can have a central and flanking layers.

Per claim 22: wherein the flanking layer is selected from the group consisting of carbon fibers, glass fibers, uni-directional fiber, cross woven fibers, matte fibers, fiber braid, uni-directional stitch woven carbon fiber braid, plastics, leathers, foils, metals, laminates, composites, thermoplastics, thermoset materials, resins, ceramics, vinyls, rigid materials, flexible materials, flanking materials, and combinations thereof. Andersen et al teaches that such sheets can be laminated or layered (Col 7, lines 19-21). Examiner notes that if a plurality of such sheets are layered, a composite material inherently results that can have a central and flanking layers.

Per claim 38,40,42,44: wherein the microsphere particles consist essentially of diameters ranging from about 15 microns to about 120 microns (Col 28, lines 49-59).

Per claim 39,41,43,45: wherein a substantial amount of the microsphere particles have about the same diameter (Col 25, line 67, Col 26, lines 1-2).

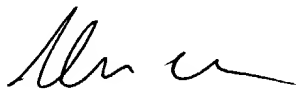
Per claims 65-68: further comprising a component selected from the group consisting of calcium carbonate (Col 26, line 47), barium sulfate, fillers,



zinc stearate, mold releasing agents, degassing agents, additives, inhibitors, thixotropes, thickening agents, resin curing agents, accelerators, promoters, catalysts, cross-linking agents, and combinations thereof.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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